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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,122	02/07/2007	John Mak	100325.0240US	5036

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FISH & ASSOCIATES, PC
ROBERT D. FISH
2603 Main Street
Suite 1000
Irvine, CA 92614-6232

EXAMINER	
ZEC, FILIP	

ART UNIT	PAPER NUMBER
3785	

NOTIFICATION DATE	DELIVERY MODE
09/27/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

rfish@fishiplaw.com
patents@fishiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/578,122	MAK ET AL.	
	Examiner	Art Unit	
	FILIP ZEC	3785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/10/2011 has been entered.

This action is in response to the amendment filed 5/10/2011. Claims 1-20 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 11, page 6, have been considered but are moot in view of the new ground(s) of rejection. Said claims are now rejected under 103(a) over Wilkinson in view of Applicant's Admitted Prior Art.

In reference to the applicant's arguments regarding the rejections of claims 2, 6-7, 10, 14-17 and 20, page 6, last paragraph – page 7, in light of the response in the previous paragraph, said arguments are non persuasive. Applicant has set forth no specific claim limitations from the original claims which are not met by references.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 8-9, 11-15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7,155,931 to Wilkinson et al. (Wilkinson) in view of Applicant's Admitted Prior Art (AAPA).

In reference to claim 1, Wilkinson teaches a plant (FIG. 10) comprising a liquefied natural gas storage vessel (10, FIG. 10) configured to receive liquefied natural gas and to allow withdrawal of a liquefied natural gas liquid (41a, FIG. 10) and a liquefied natural gas vapor (43b, FIG. 10); a fractionator (16, FIG. 10) that is fluidly coupled to the storage vessel (10, FIG. 10) and configured to receive a fractionator feed (43c, FIG. 10), wherein the fractionator is configured to allow production of (a) an overhead product comprising C_2 and lighter components (46, FIG. 10) and (b) a bottom product comprising C_3 and heavier components (47, FIG. 10); an overhead condenser (17, FIG. 10 and 19) coupled to the fractionator and configured to allow refrigeration content of the liquefied natural gas liquid to condense the overhead product comprising C_2 and lighter components; and wherein the fractionator feed (43c, FIG. 10) is a combination of the bottom product comprising C_3 and heavier components and the liquefied natural gas vapor originating from the vapor withdrawal port (in heat exchanger 13, FIG. 10), but does not teach that the liquefied natural gas storage vessel has a receiving port that is configured to receive liquefied natural gas and further having separate liquid withdrawal and vapor withdrawal ports that are configured to allow separate withdrawal of a liquefied natural gas liquid and a liquefied natural gas vapor from the storage vessel. AAPA teaches a liquefied natural gas storage vessel (52, FIG. 1) having a receiving port (pipe connecting 1 with LNG storage tank, FIG. 1) that is configured to receive liquefied natural gas (from LNG carrier 50, FIG. 1) and further having separate liquid withdrawal (for pipe 6, FIG. 1) and vapor withdrawal

ports (for pipe 2, FIG. 1) that are configured to allow separate withdrawal of a liquefied natural gas liquid and a liquefied natural gas vapor from the storage vessel (FIG. 1) in order to provide previously separated streams of LNG to the fractionator without having to use additional heat exchanger to condense/evaporate vapor or liquid LNG.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wilkinson, to include a liquefied natural gas storage vessel having a receiving port that is configured to receive liquefied natural gas and further having separate liquid withdrawal and vapor withdrawal ports that are configured to allow separate withdrawal of a liquefied natural gas liquid and a liquefied natural gas vapor from the storage vessel, as taught by AAPA, in order to provide previously separated streams of LNG to the fractionator without having to use additional heat exchanger to condense/evaporate vapor or liquid LNG.

In reference to claim 2, Wilkinson and AAPA disclose the plant as described in the rejection of claim 1, but does not teach that a portion of the liquefied natural gas vapor from the storage vessel is routed to a second liquefied natural gas storage vessel. AAPA shows a line (2, FIG. 1) conveying the vapor from the storage tank (52, FIG. 1) and splitting into two streams (2 and 3, FIG. 1) wherein one stream (3, FIG. 1) is conveyed to another storage tank (50, FIG. 1; page 6, line 5 of the specification) in order to replace the displaced volume from ship unloading (page 6, lines 5-6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wilkinson, to include a line tapping the vapor

line from the storage tank and conveying said vapor to another storage tank, as taught by AAPA, in order to replace the displaced volume from ship unloading.

In reference to claim 3, Wilkinson and AAPA disclose the plant as explained in the rejection of claim 1, and Wilkinson also teaches a heat exchanger (inside of absorbing section 16a, FIG. 10) configured to cool the fractionator feed using the liquefied natural gas liquid as a refrigerant (from 49a, FIG. 10).

In reference to claim 4, Wilkinson and AAPA disclose the plant as explained in the rejection of claim 1, and Wilkinson also teaches a second heat exchanger (13, FIG. 10) configured to heat the fractionator feed (43, FIG. 10) using the bottom product comprising C_3 and heavier components (16, FIG. 10) from the fractionator as a heat source (col 12, lines 47-49).

In reference to claim 5, Wilkinson and AAPA disclose the plant as explained in the rejection of claim 1, and Wilkinson also teaches that the fractionator is configured to provide the condensed overhead product comprising C_2 and lighter components to the liquefied natural gas liquid (col 12, lines 34-37).

In reference to claim 8, Wilkinson and AAPA disclose the plant as explained in the rejection of claim 1, and Wilkinson also teaches that the fractionator is configured to receive a portion of the liquefied natural gas liquid (42a, FIG. 10) as fractionator feed after the liquefied natural gas liquid provided refrigeration for condensation of the overhead product comprising C_2 and lighter components (in heat exchanger 17, FIG. 10).

In reference to claim 9, Wilkinson and AAPA disclose the plant as explained in the rejection of claim 8, and Wilkinson also teaches that the fractionator (16, FIG. 11) is further configured to provide a liquefied petroleum gas (47, FIG. 11) as a bottom product (col 1, lines 8-

10; col 15, lines 4-9). Even though FIG. 11 represents a different embodiment then the embodiment used in FIG. 10, the separator, which is in essence the fractionator, as claimed in the present invention, does not teach away from the second embodiment and can be used in combination with said second embodiment to disclose the entire claim 9.

In reference to claim 10, Wilkinson and AAPA disclose the plant as described in the rejection of claim 9, but they do not teach that the fractionator is configured to receive another portion of the liquefied natural gas liquid as condensation refrigerant after the liquefied natural gas liquid has provided refrigeration for condensation of the overhead product comprising C_2 and lighter components. Wilkinson shows the fractionator (16, FIG. 19) receiving the portion of the liquefied natural gas liquid (41a, FIG. 19) as condensation refrigerant (in heat exchanger 17, FIG. 19) in order to condense the lighter overhead vapor (col 12, lines 34-37). Although Wilkinson does not disclose a plurality of condensing lines passing throughout the separator to cool off the vapor, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In this case, another line conveying liquefied natural gas liquid would simply increase the capacity of the system, which one of ordinary skill in the art would find obvious.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wilkinson and AAPA, to include an additional line conveying liquefied natural gas liquid through the condensing part of the separator, as taught by Wilkinson, in order to increase the capacity of the system.

In reference to claims 11, 12, 13, 18 and 19, they claim the method of providing and configuring the apparatus of claims 1, 3, 4, 8 and 9, respectively, thus, they are rejected based on

the rejection of claims 1, 3, 4, 8 and 9 above and the associated method steps follow directly from the use of the apparatus.

In reference to claims 14 and 15, they claim the method of providing and configuring the apparatus of claim 2, thus, they are rejected based on the rejection of claim 2 above and the associated method steps follow directly from the use of the apparatus.

In reference to claim 20, it claims the method of providing and configuring the apparatus of claim 10, thus, it is rejected based on the rejection of claim 10 above and the associated method steps follow directly from the use of the apparatus.

5. Claims 6, 7, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson in view of AAPA, and further in view of U.S. Patent 6,089,022 to Zednik et al. (Zednik).

In reference to claim 6, Wilkinson and AAPA disclose the plant as described in the rejection of claim 1, but does not teach a second liquefied natural gas storage vessel that provides the liquefied natural gas and configured to provide a second liquefied natural gas vapor to the second liquefied natural gas storage vessel. Zednik shows a system (FIG. Z below, as annotated by the Examiner) wherein a portion of the liquid natural gas vapor (from the supply line 13, FIG. Z) is returned (via line X, FIG. Z) to the storage tank (16, FIG. Z) located off shore (10, FIG. Z) in order to replace the displaced volume from ship unloading.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wilkinson and AAPA, to include a line tapping the vapor line from the storage tank and returning said vapor to said storage tank, as taught by Zednik, in order to replace the displaced volume from ship unloading.

In reference to claim 7, Wilkinson, AAPA and Zednik disclose the plant as described in the rejection of claim 1, but Wilkinson does not teach that the second liquefied natural gas storage vessel is located on a ship. Zednik shows a system (FIG. Z) wherein a portion of the liquid natural gas vapor (from the supply line 13, FIG. Z) is returned (via line X, FIG. Z) to the storage tank (16, FIG. Z) located on ship (10, FIG. Z; col 3, lines 65-66) in order to replace the displaced volume from ship unloading.

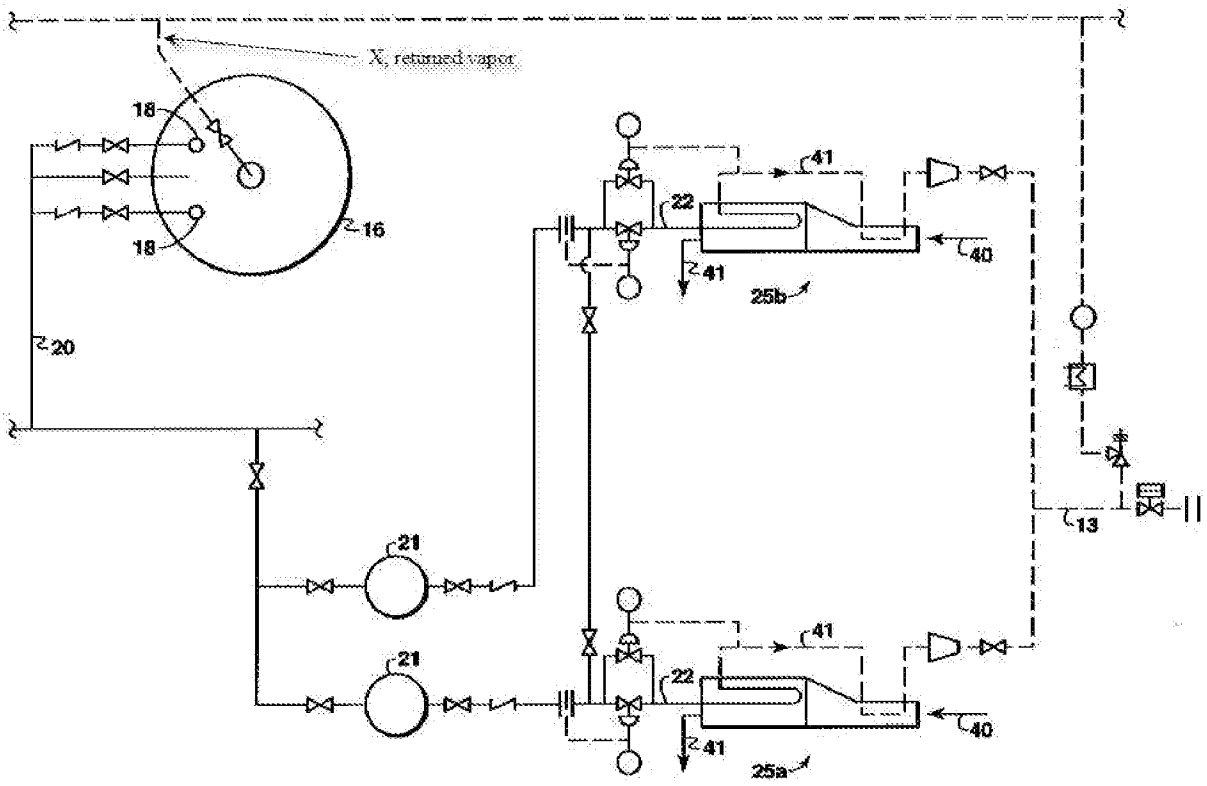

FIG. Z, as annotated by Examiner: return LNG vapor line to storage vessel on a ship

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wilkinson and AAPA, to include a line tapping

the vapor line from the storage tank and returning said vapor to said storage tank, as taught by Zednik, in order to replace the displaced volume from ship unloading.

In reference to claims 16 and 17, they claim the method of providing and configuring the apparatus of claims 6 and 7, thus, they are rejected based on the rejection of claims 6 and 7 above and the associated method steps follow directly from the use of the apparatus.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication 2003/0029190 to Trebble teaches hydrocarbon gas processing.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FILIP ZEC whose telephone number is (571)270-5846. The examiner can normally be reached on Monday-Friday, from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JJ Swan can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J J Swann/
Supervisory Patent Examiner, Art Unit 3785

/F. Z./
Examiner, Art Unit 3785

9/10/11